CLAIMS

What is claimed is:

1. A telephone data collection device adapted to collect data from a telephone system having a data transmission interface through which data may be transmitted in an input protocol, said device comprising:

a computer including a processor, program memory and data memory, data communication input and output interfaces connected to said processor, the input interface comprising an network interface,

a software program loaded into program memory read and executed by the processor in implementing a network compatible data communication protocol for the network interface for data transfer to the computer through the network interface, said software program also transferring data received through the input interface between the input interface, data memory and the output interface, said software program further implementing a transmission protocol in program memory enabling transmission of data stored in said data memory through said output interface,

wherein said computer receives data from a telephone system through the network interface employing a network protocol, buffers the data in data memory, and transmits said data to a host through the output interface in a communication protocol, the output interface and communication protocol

compatible with the host, converting said data received in one protocol to data transmitted in another protocol, as necessary, therein establishing data communication between the telephone system and the host.

2. The telephone data collection device of claim 1 wherein the output interface comprises a network interface.

3. The telephone data collection device of claim 1 wherein the output interface and the input interface are the same interface, receiving and transmitting data through the same network interface.

4. The telephone data collection device of claim 3 wherein data is collected the said same network interface by one set of software instructions and then transferred through said same network interface by another set of software instructions, therein separating the collection and transmission of data through said same network interface.

5. The telephone data collection device of claim 1 wherein the output interface comprises a serial interface.

6. The telephone data collection device of claim 1 wherein said input interface comprises a plurality of input interfaces and wherein the software program loads a selective communication protocol into program memory matching the input interface through which data is received.

7. The telephone data collection device of claim 6 wherein the input interface comprises a serial interface and an network interface.

8. The telephone data collection device of claim 1 further comprising a plurality of output interfaces wherein the software program loads into program memory a

selective communication protocol appropriate for the output interface through which data is transmitted.

9. The telephone data collection device of claim 8 wherein the output interface comprises an network interface.

10. The telephone data collection device of claim 8 wherein the output interface comprises a serial interface.

11. The telephone data collection device of claim 8 wherein the output interface comprises a telephone line interface.

12. The telephone data collection device of claim 1 wherein the software program further comprises an evaluation program adapted to analyze received data.

13. The telephone data collection device of claim 12 wherein said evaluation program includes analysis steps to detect alarm conditions.

14. The telephone data collection device of claim 13wherein data alarm report is transmitted through said data output interface.

15. The telephone data collection device of claim 14 wherein said data alarm report is transmitted through said data output interface along with data.

16. The telephone data collection device of claim 1 wherein said input interface is selectively connectable to any one of a plurality of telephone systems and said software program uniquely recognizes data received from each of said telephone systems, storing the data in data memory identifiable to each of said plurality of telephone systems.

17. The telephone data collection device of claim 1 wherein said output interface is selectively connectable to any of a plurality of host computers to which data in

data memory may be transmitted.

18. The telephone data collection device of claim 8 wherein said plurality of input interfaces includes a telephone line interface.

19. The telephone data collection device of claim 18 wherein said telephone line interface includes a PSTN interface employing a compatible PSTN protocol.

20. The telephone data collection device of claim 18 wherein said telephone line interface includes a network interface employing a compatible network protocol.

21. The telephone data collection device of claim 1 further comprising one network interface connectable to a host and another independent network interface connectable to a PBX therein separating said one network that may experience routing or network operational difficulties from said other network and any routing or network operational difficulties that might be attendant to that network, enabling said one network to continue to collect data from a PBX via the first network interface and network while the other network interface and network that is used to transfer data to the host is not operational.

22. The telephone data collection device of claim 1 wherein the processor in communication with said data memory causes collected data to be stored in the data memory until it has been successfully transferred to at least one host through its output interface.

23. The telephone data collection device of claim 22 wherein said output interface comprises a second network interface connectable to an associated network connection, a telephone line interface, and a transmitting serial interface and wherein the collected data is transferred to at least one host through at least one of

said second network interface and its associated network connection, said telephone line interface, or said transmitting serial interface.

24. The telephone data collection device of claim 1 wherein said output interface comprises a second network interface connectable to an associated network connection, a telephone line interface, and a transmitting serial interface and said software program further comprises instructions to send and receive data on said input and output interfaces, executing a variety of transfer protocols for the collection or transfer of data.

25. The telephone data collection device of claim 24 wherein said variety of transfer protocols include Xmodem, Zmodem, network File Transfer Protocol (FTP), Telnet, and Simple Network Management Protocol (SNMP) trap transmission protocols.

26. The telephone data collection device of claim 24 wherein the software program further comprises instructions to identify a protocol through which data is being transmitted by a PBX and initiating a matching data transfer protocol at said input interface for receiving said data.

27. The telephone data collection device of claim 24 wherein said protocols may include a protocol simulating an FTP client, enabling connection to a host operating as an FTP server and transfer of data using a FTP protocol, acting as an HTTP client and making a connection to a host operating as an HTTP server and transferring the data using an HTTP protocol or methods or acting as an HTTP server and transferring the data to an HTTP client using HTTP protocols and methods.

28. The telephone data collection device of claim 24 wherein said protocols may include a protocol simulating an HTTP client enabling a connection to a host operating as an HTTP server and transfer of the data using an HTTP protocol

29. The telephone data collection device of claim 26 wherein said variety of transfer protocols includes a protocol for the collection of data from a network-enabled telephone system.

30. The telephone data collection device of claim 24 wherein said variety of transfer protocols includes an evaluation program that analyzes collected data against pre-determined alarm conditions and criteria to determine if some portion of received data contains evidence of an alarm condition.

31. The telephone data collection device of claim 1 wherein said input network interface is connectable through the network to a plurality of PBX telephone systems.

32. The telephone data collection device of claim 1 wherein said output network interface is connectable through the network to a plurality of hosts that are to receive the data collected by the telephone data collection device.

33. The telephone data collection device of claim 2 wherein the input interface further comprises an input serial interface connectable to a PBX host transmitting data through a PBX serial interface, said data receivable through said input serial interface and transferable through the output network interface therein transferring the data transmitted from a PBX through a serial protocol for data communication to a receiving host through the output interface employing a protocol for data communication matching the output network interface.

34. The telephone data collection device of claim 33 wherein the output interface comprises an network interface employing an network protocol.

35. The telephone data collection device of claim 33 wherein the output interface comprises a telephone line interface employing the PSTN, the collected data transferring to said receiving host through the telephone line interface and the PSTN using appropriate protocols

36. The telephone data collection device of claim 35 wherein said protocols comprise Xmodem or Zmodem protocols.

37. The telephone data collection device of claim 1 wherein the software program includes instructions to emulate a receiving host compatible with a network-enabled telephone systems for receiving data therefrom, including configuration of protocol types and establishing a network connection.

38. The telephone data collection device of claim 37 wherein configuration information for use in establishing a network connection with a network-enabled PBX either in active or passive connection modes, port numbers and network addresses is contained in a configuration file stored in computer memory.

39. The telephone data collection device of claim 37 configured with multiple network addresses and ports and protocols providing data communication with a plurality of network-enabled telephone systems, the data received stored in the data memory.

40. The telephone data collection device of claim 39 configured with multiple passive or active data communication connections to a plurality of network-enabled telephone systems and hosts, respectively, enabling multiple simultaneously data

collection from said multiple network-enabled telephone systems and simultaneous transfer of data to said plurality of hosts.

41. The telephone data collection device of claim 40 configured to collect and process alarm records simultaneously from a plurality of network-enabled PBX units and transmit alarm messages simultaneously to a plurality of hosts.

42. The telephone data collection device of claim 37 wherein the software program includes instructions that configure the output interface for data transfer to a receiving host, implementing appropriate data transfer protocols as provided in a configuration file and loading FTP server functions as an initialization mode if a FTP server protocol is enabled to run as a separate process in initializing a network port and waiting for a connection to its FTP server upon which data is transferred from the data memory to the receiving host, returning to its initialization mode to prepare a new network port for connection and waiting for a new connection to be made to the FTP server when the data transfer is completed.

43. The telephone data collection device of claim 37 wherein the software program includes instructions that configure the output interface for data transfer to a receiving host, implementing appropriate data transfer protocols as provided in a configuration file and loading telnet command-based server functions as an initialization mode if a telnet server protocol is enabled to run as a separate process in initializing a network port and waiting for a connection to its telnet server upon which data is transferred from the data memory to the receiving host, returning to its initialization mode to prepare a new network port for connection and waiting for a new connection to be made to the telnet server when the data

transfer is completed.

44. The telephone data collection device of claim 37 wherein the software program includes instructions that configure the output interface for data transfer to a receiving host, implementing appropriate data transfer protocols as provided in a configuration file and loading server functions appropriate for that protocol as an initialization mode if data transfer protocol is enabled to run as a separate process in initializing a network port and waiting for a connection to its matching server upon which data is transferred from the data memory to the receiving host, returning to its initialization mode to prepare a new network port for connection and waiting for a new connection to be made to the matching server when the data transfer is completed.